PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Masahide MOHRI, et al.

Continuation Application of
Appln. No.: 08/416,738 Group Art Unit: Not Assigned

Confirmation No.: Not Assigned Examiner: Not Assigned

Filed: June 27, 2001

For: METAL OXIDE POWDER AND METHOD FOR THE PRODUCTION OF THE SAME

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination, please amend the above-identified application as follows:

IN THE SPECIFICATION:

Before the first line insert the following paragraph:

This is a continuation of Application No. 08/416,738 filed August 11, 1994, the disclosure of which is incorporated herein by reference. The international application to which benefit is claimed was not published under PCT Article 21(2) in English.

Replace the first paragraph of page 13 with the following paragraph:

A suitable calcination temperature is not necessarily critical since it depends on the kind of the intended metal oxide, the kinds and concentrations of the hydrogen halide, the molecular halogen and the component prepared from the molecular halogen and steam, or the calcination time. It is preferably from 500 to 1500°C, more preferably from 600 to 1400°C. When the calcination temperature is lower than 500°C, a long time is necessary for calcination. When the calcination temperature exceeds 1500°C, many agglomerated particles tend to be contained in the produced metal oxide powder.

Replace TABLE 2 on Page 34 with the following:

Table 2

Ex. No.	Oxide	Calcination conditions										
		Atmosphere gas (vol. %)								Gas introduction temp. (°C)	Maintaining temp. (°C)	Maintaining time (min.)
		HCl	HBr	HF	Cl_2	N_2	H_2O	H_2	Air			
11	TiO_2	100								Room temp.	800	30
12	TiO_2	45					10		45	Room temp.	1100	30
13	TiO_2	100								Room temp.	1100	30
14	TiO_2	100								800	1100	30
15	TiO_2	30				7 0				800	1100	30
16	TiO_2	30							70	800	800	30
17	TiO_2				30	60	10			800	1100	30
18	TiO_2				100					800	1100	30
19	TiO_2				30	60	10			800	1100	30
C. 1	TiO_2								100	Room temp.	1100	180
C. 2	TiO_2								100	Room temp.	1100	180

IN THE CLAIMS:

Cancel claims 2, 3, 29 and 30.

Please enter the following amended claims:

1 (amended). A metal oxide powder except α-alumina, comprising polyhedral particles having at least 6 planes each, a number average particle size of from 0.1 to 300 μm, and a D_{90}/D_{10} ratio of 5 or less where D_{10} and D_{90} are particle sizes at 10% and 90% accumulation, respectively from the smallest particle size side in a cumulative particle size curve of the particles, and

wherein a ratio of agglomerated particle size to a primary particle size is from 1 to 6.

4 (amended). The metal oxide powder according to claim 3, wherein said ratio of an agglomerated particle size to a primary particle size is from 1 to 3.

5 (amended). The metal oxide powder according to any one of claims 1 or 4, wherein said metal oxide is a simple metal oxide of a metal element selected from the group consisting of the metal elements of the Groups Ib, II, III, IV, V, VI, VII and VIII of the Periodic Table, except α-alumina powder.

6 (amended). The metal oxide powder according to any one of claims 1 or 4,

wherein said metal oxide is a simple metal oxide titanium.

7 (amended). The metal oxide powder according to any one of claims 1 or 4, wherein said metal oxide is a simple metal oxide of a metal selected from the group consisting of magnesium, zirconium and iron.

8 (amended). The metal oxide powder according to any one of claims 1 or 4, wherein said metal oxide is a simple metal oxide of cerium.

9 (amended). The metal oxide powder according to any one of claims 1 or 4, wherein said metal oxide is a simple metal oxide of a metal selected from the group consisting of indium and tin.

10 (amended). The metal oxide powder according to any one of claims 1 or 4, wherein said metal oxide is a simple metal oxide of a metal selected from the group consisting of zinc, cadmium, gallium, germanium, niobium, tantalum, antimony, bismuth, chromium, molybdenum, manganese, cobalt, nickel and uranium.

11 (amended). A rutile type titanium oxide powder comprising polyhedral particles each having at least 8 planes, a number average particle size of from 0.1 to 300 μm, a D_{90}/D_{10} ratio of 5 or less where D_{10} and D_{90} are particle sizes at 10% and

90% accumulation, respectively from the smallest particle size side in a cumulative particle size curve of the particles, and a ratio of agglomerated particle size to primary particle size of the particles is from 1 to 6.

28 (amended). The method according to claim 13 or 14, wherein said metal oxide powder or metal oxide precursor powder is a metal oxide powder or metal oxide precursor powder of a metal selected from the group consisting of magnesium, titanium, and iron.

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Continuation Application of
U.S. Appln. No. 08/416,738

REMARKS

Entry and consideration of this Preliminary Amendment is respectfully requested.

Respectfully submitted,

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The specification is changed as follows:

Before the first line the following sentence is inserted:

This is a continuation of Application No. 08/416,738 filed August 11, 1994, the disclosure of which is incorporated herein by reference. The international application to which benefit is claimed was not published under PCT Article 21(2) in English.

Page 13, first paragraph, is replaced with the following paragraph:

A suitable calcination temperature is not necessarily critical since it depends on the kind of the intended metal oxide, the kinds and concentrations of the hydrogen halide, the molecular halogen and the component prepared from the molecular halogen and steam, or the calcination time. It is preferably from 500 to 1500°C, more preferably from 600 to 1400°C. When the calcination [time] temperature is lower than 500°C, a long time is necessary for calcination. When the calcination temperature exceeds 1500°C, many agglomerated particles tend to be contained in the produced metal oxide powder.

The Table 2 on Page 34 is amended as follows:

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Table 2

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17	TiO_2				30	60	10			800	1100	30
18	TiO_2				100				[45]	800	1100	30
19	TiO_2				30	60	10			800	1100	30
C. 1	TiO_2								100	Room temp.	1100	180
C. 2	TiO_2								100	Room temp.	1100	180

IN THE CLAIMS:

Claims 2, 3, 29 and 30 are canceled.

The claims are amended as follows:

1 (amended). A metal oxide powder except α-alumina, comprising polyhedral particles having at least 6 planes each, a number average particle size of from 0.1 to 300 μm, and a D_{90}/D_{10} ratio of [10] 5 or less where D_{10} and D_{90} are particle sizes at 10% and 90% accumulation, respectively from the smallest particle size side in a cumulative particle size curve of the particles, and

wherein a ratio of agglomerated particle size to a primary particle size is from 1 to 6.

4 (amended). The metal oxide powder according to claim 3, wherein said ratio of [a primary] an agglomerated particle size to [an agglomerated] a primary particle size is from 1 to 3.

5 (amended). The metal oxide powder according to any one of claims 1 [to] or 4, wherein said metal oxide is a simple metal oxide of a metal element selected from the group consisting of the metal elements of the Groups Ib, II, III, IV, V, VI, VII and VIII of the Periodic Table, except α-alumina powder.

6 (amended). The metal oxide powder according to any one of [clams] claims 1 [to] or 4, wherein said metal oxide is a simple metal oxide titanium.

7 (amended). The metal oxide powder according to any one of claims 1 [to] or 4, wherein said metal oxide is a simple metal oxide of a metal selected from the group consisting of magnesium, zirconium and iron.

8 (amended). The metal oxide powder according to any one of claims 1 [to] or 4, wherein said metal oxide is a simple metal oxide of cerium.

9 (amended). The metal oxide powder according to any one of claims 1 [to] or 4, wherein said metal oxide is a simple metal oxide of a metal selected from the group consisting of indium and tin.

10 (amended). The metal oxide powder according to any one of claims 1 [to] or 4, wherein said metal oxide is a simple metal oxide of a metal selected from the group consisting of zinc, cadmium, gallium, germanium, niobium, tantalum, antimony, bismuth, chromium, molybdenum, manganese, cobalt, nickel and uranium.

11 (amended). A rutile type titanium oxide powder comprising polyhedral

particles each having at least 8 planes, a number average particle size of from 0.1 to 300 μm, a D_{90}/D_{10} ratio of 5 or less where D_{10} and D_{90} are particle sizes at 10% and 90% accumulation, respectively from the smallest particle size side in a cumulative particle size curve of the particles, and a ratio of agglomerated particle size to primary particle size of the particles is from 1 to 6.

28 (amended). The method according to claim 13 or 14, wherein said metal oxide powder or metal oxide precursor powder is a metal oxide powder or metal oxide precursor powder of a metal selected from the group consisting of magnesium, titanium, [zirconium] and iron.